



6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA-R06-OAR-2016-0476; FRL-9977-01-Region 6]

Approval and Promulgation of Implementation Plans; Texas; Attainment

Demonstration for the Dallas/Fort Worth 2008 Ozone Nonattainment Area

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: Pursuant to the Federal Clean Air Act (CAA or the Act), the Environmental Protection Agency (EPA) is proposing to approve the ozone attainment demonstration State Implementation Plan (SIP) revisions for the Dallas/Fort Worth (DFW) moderate ozone nonattainment area under the 2008 ozone National Ambient Air Quality Standard (NAAQS) submitted by the State of Texas (the State). Specifically, EPA is proposing approval of the attainment demonstration, a reasonably available control measures (RACM) analysis, the contingency measures plan in the event of failure to attain the NAAQS by the applicable attainment date, and the associated Motor Vehicle Emissions Budgets (MVEBs) for 2017, which is the attainment year for the area.

DATES: Written comments must be received on or before **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: Submit your comments, identified by Docket No. EPA-R06-OAR-2016-0476, at <http://www.regulations.gov> or via email to todd.robert@epa.gov. Follow the online instructions for submitting comments. Once submitted, comments cannot be edited or removed from Regulations.gov. The EPA may publish any comment received to its public docket. Do not

submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (i.e. on the web, cloud, or other file sharing system). For additional submission methods, please contact Robert M. Todd, 214-665-2156, *todd.robert@epa.gov*. For the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit <http://www2.epa.gov/dockets/commenting-epa-dockets>.

Docket: The index to the docket for this action is available electronically at www.regulations.gov and in hard copy at the EPA Region 6, 1445 Ross Avenue, Suite 700, Dallas, Texas. While all documents in the docket are listed in the index, some information may be publicly available only at the hard copy location (e.g., copyrighted material), and some may not be publicly available at either location (e.g., CBI).

FOR FURTHER INFORMATION CONTACT: Robert M. Todd, 214-665-2156, *todd.robert@epa.gov*. To inspect the hard copy materials, please schedule an appointment with Mr. Todd or Mr. Bill Deese at 214-665-7253.

SUPPLEMENTARY INFORMATION: Throughout this document, “we,” “us,” and “our” means the EPA.

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I. Background

In 2008 we revised the 8-hour ozone primary and secondary NAAQS to a level of 0.075 parts per million (ppm) or 75 parts per billion (ppb) to provide increased protection of public health and the environment (73 FR 16436, March 27, 2008). The 2008 ozone NAAQS revised the 1997 8-hour ozone NAAQS of 0.08 ppm. The DFW area was classified as a “Moderate” ozone nonattainment area (NAA) for the 2008 ozone NAAQS and initially given an attainment date of no later than December 31, 2018 (77 FR 30088 and 77 FR 30160, May 21, 2012). The DFW Moderate ozone NAA for the 2008 ozone standard consists of Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, Tarrant and Wise counties (DFW NAA).

On December 23, 2014, the D.C. Circuit Court of Appeals issued a decision rejecting, among other things, our attainment deadlines for the 2008 ozone nonattainment areas, finding that we did not have statutory authority under the CAA to extend those deadlines to the end of the calendar year. *NRDC v. EPA*, 777 F.3d 456, 464–69 (D.C. Cir. 2014). Consistent with the Court’s decision to vacate that portion of the rule, we modified the attainment deadlines for all nonattainment areas for the 2008 ozone NAAQS, and set the attainment deadline for all 2008 Moderate ozone nonattainment areas, including the DFW NAA as July 20, 2018 (80 FR 12264, March 6, 2015).

On July 10, 2015, Texas submitted a SIP revision for the DFW NAA based on an attainment date of December 31, 2018. Because that date was vacated by the Court, Texas had to further revise its SIP to address an attainment date of July 20, 2018 which it submitted on August 5, 2016.¹ The portion of the July 10, 2015 SIP submittal that was not impacted by the Court's decision was the contingency measures plan portion as Texas was able to address the July 20, 2018 attainment deadline for this portion of the plan. Because the State revised and replaced the other portions of the 2015 SIP that were impacted by the Court's decision, with the August 5, 2016 submittal, the remainder of the 2015 submittal is superseded by the August 5, 2016 submittal. See the docket for copies of these submittals.

The August 5, 2016 submittal is designed to demonstrate attainment of the 2008 ozone NAAQS by the attainment date of July 20, 2018 and relies, in part, on a variety of controls on minor and major stationary sources and controls on mobile source emissions, achieved through a combination of Federal, State and Local measures. These measures are projected to reduce emissions of NO_x and VOC in the DFW NAA.² The measures that have been relied on in this demonstration have been approved in prior Federal Register (FR) actions, as noted below. The Texas Commission on Environmental Quality (TCEQ or the State) used photochemical modeling

¹ In the DFW AD SIP revision for the 2008 eight-hour ozone NAAQS submitted to the EPA on July 10, 2015, a commitment was made to address the DC Circuit's decision that changed the attainment deadlines for the 2008 eight-hour ozone NAAQS to a July 20, 2018 attainment date and a 2017 attainment year. The 2016 SIP revision includes a new photochemical modeling analysis, a weight of evidence analysis, and a reasonably available control measures analysis that reflect the 2017 attainment year.

² NO_x and VOC are precursors to ozone formation. Additional information on ozone formation and the NAAQS is provided on the EPA website: <https://www.epa.gov/ozone-pollution>. Additional information on the history of the Texas and DFW SIPs is provided on the TCEQ website: <https://www.tceq.texas.gov/airquality/sip> and in the proposed rule to address the DFW attainment demonstration under the 1997 ozone NAAQS, provided in docket ID EPA-R06-OAR-2007-0524.

and other corroborative evidence to predict the improvement in ozone levels that will occur due to these controls while accounting for growth in the DFW NAA.

Per the requirements in our final rule titled “Implementation of the 2008 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements; Final Rule,” 80 FR 12264 (March 6, 2015), SIP Requirements Rule (SRR), an area classified as Moderate under 40 CFR § 51.1103(a) – in this case is the DFW NAA - shall be subject to the requirements applicable for that classification under CAA section 182(b).³ For each nonattainment area, under 40 CFR 51.1108, the state must provide for implementation of all control measures needed for attainment no later than the beginning of the attainment year ozone season. Consistent with CAA section 182(b), each state in which a Moderate Area is located shall, with respect to the Moderate Area, submit plan provisions for RFP, RACM, RACT, an emissions inventory, an emissions statement, motor vehicle I/M, a NNSR program with the classification’s general offset requirements, and control measures needed to provide for attainment by the applicable attainment deadline.⁴

The attainment demonstration requirements for the 2008 ozone standard can be found in 40 CFR 51.1108 (Modeling and attainment demonstration requirements) and 40 CFR 51.112

³ On February 16, 2018 the D.C. Circuit issued a decision on the 2008 ozone NAAQS SRR. The adverse holdings of the case do not affect our proposal action.

⁴ We approved the motor vehicle I/M, NNSR, and offsets for the DFW Moderate NAA under the 2008 ozone NAAQS at 82 FR 27122 (June 14, 2017). We approved the NO_x rules on April 13, 2016 at 81 FR 21747 and NO_x RACT for all affected sources but for one cement manufacturing company at 82 FR 44320 (September 22, 2017); and the VOC rules and VOC RACT were approved December 21, 2017 at 82 FR 60546. We approved the RFP requirements at 81 FR 88124 (December 7, 2016). We approved the emissions inventory at 80 FR 9204 (February 20, 2015). We previously approved provisions for an emissions statement program for the 1997 1-hour ozone NAAQS at 59 FR 44036 (August 26, 1994). In a separate action, we expect to propose to convert the conditional approval of the cement company to a full approval as RACT and propose that the emissions statement program for the DFW Moderate NAA meets the 2008 ozone NAAQS requirements. These two SIP elements are separate from a review of an attainment demonstration SIP.

(Demonstration of adequacy); these requirements are described fully in the Technical Support Documents (TSD), provided in the docket for this proposed action.

In general, an ozone attainment demonstration includes a photochemical modeling analysis and other evidence (referred to as “Weight of Evidence”) (WOE) showing how an area will achieve the standard as expeditiously as practicable, but no later than the attainment date specified for its classification.

Below we discuss the statutory and regulatory requirements that prescribe our review of the State’s attainment demonstration, the elements in the State’s submittal, and our evaluation of those elements comprising the attainment demonstration SIP. As stated above, we previously approved several of the State’s nonattainment area plan requirements. We are evaluating the attainment demonstration and its associated MVEBs, RACM, and contingency measures plan in the event of failure to attain the NAAQS by the applicable attainment date in this action.

II. The EPA’s Evaluation

A. Review of Eight-Hour Attainment Demonstration Modeling and Weight of Evidence

EPA’s regulations at 40 CFR 51.1108(c) specifically require that areas classified as moderate and above submit a modeled attainment demonstration based on a photochemical grid modeling evaluation or any other analytical method determined by the Administrator to be at least as effective as photochemical modeling. Section 51.1108(c) also requires each attainment demonstration to be consistent with the provisions of 40 CFR 51.112, including Appendix W to 40 CFR part 51 (i.e., “EPA’s Guideline on Air Quality Models,” 70 FR 68218, November 9, 2005 and 82 FR 5182, January 17, 2017). See also EPA’s “Guidance on the Use of Models and Other Analyses for Air Quality Goals in Attainment Demonstrations for Ozone, PM_{2.5}, and Regional Haze,” April 2007 and “Draft Modeling Guidance for Demonstrating Attainment of Air

Quality Goals for Ozone, PM_{2.5}, and Regional Haze,” December 2014 (hereafter referred to as “EPA’s 2007 A.D. guidance” and “EPA’s 2014 Draft A.D. guidance”), which describe criteria that an air quality model and its application should meet to qualify for use in an 8-hour ozone attainment demonstration. For the detailed review of modeling and the WOE analyses and EPA’s analysis of the DFW 8-hour Ozone attainment demonstration see the “Modeling and Other Analyses Attainment Demonstration” (MOAAD) Technical Support Document (TSD). The MOAAD TSD also includes a complete list of applicable modeling guidance documents. These guidance documents provide the overall framework for the components of an attainment demonstration, how the modeling and other analyses should be conducted, and overall guidance on the technical analyses for attainment demonstrations.

As with any predictive tool, there are inherent uncertainties associated with photochemical modeling. EPA’s guidance recognizes these uncertainties and provides approaches for considering other analytical evidence to help assess whether attainment of the NAAQS is demonstrated. This process is called a WOE determination. EPA’s modeling guidance (updated in 1996, 1999, and 2002) discusses various WOE approaches. EPA’s modeling guidance has been further updated in 2005, 2007 and a Draft in 2014 for the 1997 and 2008 8-hour ozone attainment demonstration procedures to include a WOE analysis as a part of any attainment demonstration. This guidance recommends that all attainment demonstrations include supplemental analyses beyond the recommended modeling. These supplemental analyses would provide additional information such as data analyses, and emissions and air quality trends, which would help strengthen the overall conclusion drawn from the photochemical modeling. EPA’s Guidance for 1997 8-hour ozone SIPs recommended that a WOE analysis be included as part of any attainment demonstration SIP where the modeling results predict Future Design Values

(FDVs) ranging from 82 to less than 88 ppb (EPA's 2005 and 2007 A.D. Guidance documents).⁵ EPA's recent 2014 Draft A.D. Guidance removed the specific range and indicated that WOE should be analyzed when the results of the modeling attainment test are close to the standard. EPA's interpretation of the Act to allow a WOE analysis has been upheld. See *1000 Friends of Maryland v. Browner*, 265 F. 3d 216 (4th Cir. 2001) and *BCCA Appeal Group v. EPA*, 355 F.3d 817 (5th Cir. 2003).

TCEQ submitted the DFW attainment demonstration SIP with photochemical modeling and a WOE analyses on August 5, 2016. The results of the photochemical modeling and WOE analyses are discussed below.

1. What is a Photochemical Grid Model?

Photochemical grid modeling is the state-of-the-art method for predicting the effectiveness of control strategies in reducing ozone levels. The models use a three-dimensional grid to represent conditions in the area of interest. TCEQ chose to use the Comprehensive Air Model with Extensions (CAMx), Version 6.20 photochemical model for this attainment demonstration SIP. The model is based on well-established treatments of advection, diffusion, deposition, and chemistry. TCEQ has used the CAMx model in other SIPs and EPA has approved many SIPs using CAMx based modeling analyses. 40 CFR Part 51 Appendix W indicates that photochemical grid models should be used for ozone SIPs and lists a number of factors to be considered in selecting a photochemical grid model to utilize. EPA has reviewed the TCEQ's reasons for selecting CAMx and EPA agrees with the choice by TCEQ to utilize CAMx for this SIP.

⁵ A.D. is Attainment Demonstration.

In this case, TCEQ has developed a modeling grid system that consists of three nested grids. The outer grid stretches from west of California to east of Maine and parts of the Atlantic Ocean to the east, and from parts of southern Canada in the north to and much of Mexico to the south extending to near the Yucatan Peninsula on the southern edge. The model uses nested grid cells of 36 km on the outer portions, 12 km for most of the Region 6 states (most of New Mexico and all of Oklahoma, Arkansas, Louisiana, and Texas) and 4-kilometer grid cells for much of Texas (not including West Texas and the Panhandle) and portions of nearby States. The 4-kilometer grid cells include the DFW Nonattainment Area. For more information on the modeling domain, see the MOAAD TSD. The model simulates the movement of air and emissions into and out of the three-dimensional grid cells (advection and dispersion); mixes pollutants upward and downward among layers; injects new emissions from sources such as point, area, mobile (both on-road and nonroad), and biogenic into each cell; and uses chemical reaction equations to calculate ozone concentrations based on the concentration of ozone precursors and incoming solar radiation within each cell. Air quality planners choose historical time period(s) (episode(s)) of high ozone levels to apply the model. Running the model requires large amounts of data inputs regarding the emissions and meteorological conditions during an episode.

Modeling to duplicate conditions during an historical time period is referred to as the base case modeling and is used to verify that the model system can predict historical ozone levels with an acceptable degree of accuracy. It requires the development of a base case inventory, which represents the emissions during the time period for the meteorology that is being modeled. These emissions are used for model performance evaluations. Texas modeled much of the 2006 ozone season (May 31 - July 2 and August 13 - September 15), so the base case emissions and

meteorology are for 2006. If the model can adequately replicate the measured ozone levels in the base case and responds adequately to diagnostic tests, it can then be used to project the response of future ozone levels to proposed emission control strategies.

2. Model Selection

TCEQ chose to use recent versions of Weather Research and Forecasting Model (WRF) version 3.2 for the meteorological modeling, Emission Processing System (EPS) version 3 for the emission processing, and CAMx version 6.20 for the photochemical grid modeling. WRF is considered a state of the science meteorological model and its use is acceptable in accordance with 40 CFR Part 51 Appendix W Section 5. The combination of EPS for emissions processing and CAMx for photochemical modeling constitutes one of the two predominant modeling platforms used for SIP level modeling. These models and versions that TCEQ used are acceptable and in accordance with 40 CFR Part 51 Appendix W Section 5.

3. What Episode did Texas Choose to Model?

Texas chose to model much of the 2006 ozone season which included a number of historical episodes with monitored exceedances. The 2006 ozone season was a period when multiple exceedance days occurred with a good representation of the variety of meteorological conditions that lead to ozone exceedances in the DFW NAA. Texas chose to model May 31-July 2, 2006 and August 13 – September 15, 2006. In addition, Texas conducted the TexAQS II air quality field study in Houston, Dallas, and throughout the eastern half of Texas during 2006 providing additional data that was helpful in modeling and accessing model performance for these periods for the DFW A.D.

We evaluated Texas' 2006 episode selection for consistency with our modeling guidance (2007, and Draft 2014 versions). Among the items that we considered were the ozone levels

during the selected period compared to the design value⁶ (DV) at the time; how the meteorological conditions during the proposed episode match with the conceptual model of ozone exceedances that drive the area's DV; were enough days modeled; and was the time period selected robust enough to represent the area's problem for evaluating future control strategies. EPA's guidance indicates that all of these items should be considered when evaluating available episodes and selecting episodes to be modeled. EPA believes that the two 2006 periods (May 31 – July 2 and August 13 – September 15) are acceptable time periods for use in TCEQ's development of the 8-hour ozone attainment plan. We note that this is an older episode but it is one of the few years with a significant number of exceedances compared to most other years in the 2006-2012 period that were available when Texas started the modeling effort for this SIP in the 2012/2013 timeframe. The only other potential period we had previously identified with Texas was the 2012 ozone season, which TCEQ did investigate but they were not able to get acceptable base case model performance in time for use in this SIP revision in the meteorological and ozone modeling for this 2012 episode in the DFW area at the time this SIP was being developed. The 2006 period also had the unique benefit of additional field data collected as part of TexAQs II. EPA guidance suggests that having the extra field data is advantageous. In light of all this information, EPA concurs with this episode being adequate. See the MOAAD TSD for further discussion and analysis.

4. How Well did the Model Perform?

Model performance is a term used to describe how well the model predicts the meteorological and ozone levels in an historical episode. EPA has developed various diagnostic,

⁶ The design value is the 3-year average of the annual fourth highest daily maximum 8-hour average ozone concentration (40 CFR 50, Appendix I).

statistical and graphical analyses that TCEQ has performed to evaluate the model's performance to determine if the model is working adequately to test control strategies. TCEQ performed many analyses of both interim model runs and the final base case model run and deemed the model's performance adequate for control strategy development. As described below, we agree that the TCEQ's model performance is adequate.

From 2012 to 2016, several iterations of the modeling were performed by TCEQ incorporating various improvements to the meteorological modeling, the 2006 base case emissions inventory, and other model parameters. TCEQ shared model performance analyses with EPA and EPA provided input. This data included analysis of meteorological outputs compared to benchmark statistical parameters that TCEQ previously developed as target values that are being used in many areas of the country. TCEQ also shared graphical analyses of the meteorology with EPA. In addition, TCEQ shared extensive analyses of the photochemical modeling for several base case modeling runs with EPA.

EPA has reviewed the above information and is satisfied that the meteorological modeling was meeting most of the statistical benchmarks, and was transporting air masses in the appropriate locations for most of the days.⁷ EPA also conducted a review of the model's

⁷ There are a number of time series and statistical analyses that EPA evaluates in determining if meteorological modeling and ozone modeling is acceptable and EPA compares these analyses in context with other SIPs and modeling conducted for EPA rulemaking to see if the modeling meets most of the benchmarks and is acceptable. EPA's modeling guidance for both meteorological modeling and ozone modeling indicates general goals for model performance statistics based on what EPA has found to be acceptable model performance goals from evaluations of a number of modeling analyses conducted for SIPs and Regulatory development. EPA's guidance also indicates that none of the individual statistics goals is a "pass/fail" decision but that the overall suite of statistics, time series, model diagnostics, and sensitivities should be evaluated together in a holistic approach to determine if the modeling is acceptable. Modeling is rarely perfect, so EPA's basis of acceptability is if the model is working reasonably well most of the time and is doing as well as modeling for other SIPs and EPA rulemaking efforts. For more details on model performance analyses and acceptability see the MOAAD TSD. (EPA 2007 A.D. Guidance, EPA 2014 Draft A.D. Guidance, Emery, C., and E. Tai, (2001), "Enhanced Meteorological Modeling and Performance Evaluation

performance in predicting ozone and ozone precursors and found that performance was within the recommended 1-hour ozone statistics for most days. We evaluate 1-hour time series and metrics as this information has less averaging/smoothing than the 8-hour analyses and results in a higher resolution for evaluating if the modeling is getting the rise and fall of ozone in a similar manner as the monitoring data. We also evaluated the 8-hour statistics, results of diagnostic and sensitivity tests, and multiple graphical analyses and determined that overall the ozone performance was acceptable for Texas to move forward with future year modeling and development of an attainment demonstration.

EPA does not expect any modeling to necessarily be able to meet all the EPA model performance goals, but relies on a holistic approach to determine if the modeling is meeting enough of the goals, the time series are close enough and diagnostic/sensitivity modeling indicates the modeling is performing well enough to be used for assessing changes in emissions for the model attainment test.⁸ EPA agrees that the overall base case model performance is acceptable, but notes that even with the refinements, the modeling still tends to have some bias performance concerns on the higher ozone days with some of the days being over predicted and some under predicted. The modeling also tended to have a slight overprediction bias for the Kaufman monitor which is usually upwind of the DFW area and more representative of background ozone entering the DFW area. See the MOAAD TSD for further analysis.

5. Once the Base Case is Determined to be Acceptable, how is the Modeling Used for the Attainment Demonstration?

for Two Texas Ozone Episodes “, prepared for the Texas Near Non-Attainment Areas through the Alamo Area Council of Governments”, by ENVIRON International Corp, Novato, CA)

⁸ *Id.*

Before using the modeling for attainment test and potential control strategy evaluation, TCEQ reviewed the base case emission inventory, and made minor adjustments to the inventory to account for things that would not be expected to occur again or that were not normal (examples: inclusion of EGUs that were not operating due to temporary shutdown during the base case period but were expected to be operating in 2017, adjusting the hour specific EGUs CEM based NO_x emissions to a typical Ozone season day emission rate). This adjusted emission inventory is called the 2006 baseline emission inventory. The photochemical model was then executed again to obtain a 2006 baseline model projection.

Since DFW is classified as a moderate NAA, the attainment deadline is as expeditiously as practicable but no later than July 20, 2018. To meet this date, it is necessary for emission reductions to be in place by no later than what is termed the attainment year, which in this case is 2017. Future case modeling using the base case meteorology and estimated 2017 emissions is conducted to estimate future ozone levels factoring in the impact of economic growth in the region and State and Federal emission controls.

EPA guidance recommends that the attainment test use the modeling analysis in a relative sense instead of an absolute sense. To predict future ozone levels, we estimate a value that we refer to as the Future Design Value (FDV). First, we need to calculate a Base Design Value (BDV) from the available monitoring data. The BDV is calculated for each monitor that was operating in the base period by averaging the three DVs that include the base year (2006). The DVs for 2004-2006, 2005-2007, and 2006-2008 are averaged to result in a center-weighted BDV for each monitor.

To estimate the FDV, a value is also calculated for each monitor that is called the Relative Response Factor (RRF) using a ratio of baseline and future modeling results around

each monitor. This calculation yields the RRF for that monitor. The RRF is then multiplied by the Base Design Value (BDV) for each monitor to yield the FDV for that monitor. The modeled values for each monitor may be calculated to hundredths of a ppb, then truncated to an integer (in ppb) as the final step in the calculation as recommended by EPA's guidance. The truncated values are included in the tables in this action. TCEQ employed EPA's recommended approach for calculating FDV's. For information on how the FDV is calculated refer to the MOAAD TSD.

The 2014 Draft A.D. Guidance indicates that instead of using all days above the standard (75 ppb) in the baseline, that the subset of 10 highest baseline days at each monitor should be used for calculating an RRF.⁹ The 10 highest days are the 10 highest 8- hour maximum daily values at each specific monitor. TCEQ provided the 2017 FDV values for each of the monitors using both procedures (2007 A.D Guidance and 2014 Draft A.D. Guidance).

EPA has reviewed the components of TCEQ's photochemical modeling demonstration and finds the analysis meets 40 CFR Part 51, including 40 CFR Part 51 Appendix W – Guideline on Air Quality Models. For a more complete description of the details of the base case modeling inputs, set-up, settings, the meteorology and photochemical model performance analysis (and EPA's evaluation of these procedures and conclusions), see the MOAAD TSD in the Docket for this action (EPA-RO6-OAR-2016-0476).

6. What did the Results of TCEQ's 2017 Future Year Attainment Demonstration Modeling Show?

The results of modeling the 2017 future baseline modeling run are shown in Table 1. In Table 1, the model FDV calculations using both EPA's 2007 A.D. Guidance method calculation

⁹ The 10 highest baseline days at a monitor are summed and become the denominator and the future year values for the same 10 days are summed and become the numerator in the RRF calculation.

and the more recent 2014 Draft A.D. Guidance calculation method are shown. We have calculated the FDVs in the following tables using the final truncated numbers in accordance with EPA guidance. EPA's more recent 2014 Draft A.D. Guidance to use just the top 10 (highest) 8-hour days from the 2006 baseline modeling instead of all days is a result of previous ozone analyses that EPA reviewed and determined that the older 2007 A.D. Guidance method can include too many days when modeling an area that can have many exceedances and can result in underestimating actual FDVs. Using the top 10 days shifts the focus of the attainment test to the highest and typically hardest days at each monitor. EPA's 2014 Draft A.D. Guidance has not been finalized as the guidance also covers PM_{2.5} and Regional Haze and EPA has delayed finalization while changes in the Regional Haze Rules and guidance have been under review. We have evaluated both approaches in the DFW modeling and are focusing on the 2014 Draft A.D. modeling results because we find it represents a more appropriate analysis of the attainment test. For example, the 2007 A.D. Guidance method results in 34 modeled days being used in the attainment test for the Denton monitor which includes a number of days where overall ozone was predicted to exceed in the 2006 baseline but was not predicted to exceed in the 2017 modeling analysis. As a result, this older guidance appears to include a number of days that are not predicted to be high ozone or exceedance days in 2017 but are still included in calculating an RRF and a FDV for the monitor. EPA's full analysis for this DFW modeling, of the two FDV calculations, and our results/conclusions for all the monitors is included in the MOAAD TSD. Table 1 includes the modeling projections prior to evaluating any other modeling sensitivity runs.

Table 1. SIP modeling projections for 2017

				Top 10 2006 Baseline Days > 75 ppb	
2006 DFW Area	2006	2017	2017	2017	2017

Monitor and CAMS Code	DV_B (ppb)	DV_F (ppb)	Truncated DV_F (ppb)	DV_F (ppb)	Truncated DV_F (ppb)
Denton Airport South - C56	93.33	77.86	77	76.26	76
Eagle Mountain Lake - C75	93.33	77.52	77	76.55	76
Grapevine Fairway - C70	90.67	77.2	77	75.65	75
Keller - C17	91	76.77	76	75.35	75
Fort Worth Northwest - C13	89.33	75.94	75	74.78	74
Frisco - C31	87.67	74.4	74	73.85	73
Dallas North #2 - C63	85	73.35	73	72.23	72
Dallas Executive Airport - C402	85	72.21	72	72.05	72
Parker County - C76	87.67	72.17	72	72.4	72
Cleburne Airport - C77	85	71.1	71	69.86	69
Dallas Hinton Street - C401	81.67	70.96	71	69.31	69
Arlington Municipal Airport - C61	83.33	70.57	70	69.86	69
Granbury - C73	83	68.73	68	68.41	68
Midlothian Tower - C94	80.5	67.77	67	67.44	67
Pilot Point - C1032	81	67.4	67	66.6	66
Rockwall Heath - C69	77.67	65.65	65	65.81	65
Midlothian OFW - C52	75	63.17	63	62.57	62
Kaufman - C71	74.67	62.04	62	62.11	62
Greenville - C1006	75	61.78	61	62.09	62

The second column is the Base DV for the 2006 period. Using the 2007 A.D. guidance 15 of the 19 DFW area monitors are in attainment, one has a FDV of 76 ppb and 3 monitors have a FDV of 77 ppb. Using the 2014 Draft A.D. Guidance all but two of the monitors are attainment. Two are projected to be near attainment with a FDV of 76 ppb. The two monitors over 76 ppb have modeled values of 76.55 and 76.26 at Eagle Mountain Lake and Denton Monitors and are 0.56 and 0.27 ppb from attainment values.¹⁰

¹⁰ A model value of 75.99 would be truncated to 75 ppb.

The standard attainment test is applied only at monitor locations. The 2007 A.D. Guidance and the 2014 Draft A.D. Guidance both recommend that areas within or near nonattainment counties but not adjacent to monitoring locations be evaluated in an unmonitored areas (UMA) analysis to demonstrate that these UMAs are expected to reach attainment by the required future year. The UMA analysis is intended to identify any areas not near a monitoring location that are at risk of not meeting the NAAQS by the attainment date. EPA provided the Modeled Attainment Test Software (MATS) to conduct UMA analyses, but has not specifically recommended in EPA's guidance documents that the only way of performing the UMA analysis is by using the MATS software. EPA has allowed states to develop alternative techniques that may be appropriate for their areas or situations.

TCEQ used their own UMA analysis (called the TCEQ Attainment Test for Unmonitored areas or TATU). EPA previously reviewed TATU during our review of the modeling protocol for the HGB area (2010 Attainment Demonstration SIP) and we are proposing approval of the use of TATU's tool and its Unmonitored Area analysis as acceptable for meeting the recommended evaluation of ozone levels in the Unmonitored Area analysis for this SIP approval action (See MOAAD TSD for review and evaluation details). The TATU is integrated into the TCEQ's model post-processing stream and MATS requires that modeled concentrations be exported to a personal computer-based platform, thus it would be more time consuming for TCEQ to use MATS for the UMA. Based on past analysis, results between TATU and MATS are similar and EPA's guidance (2007 and Draft 2014) provides states the flexibility to use other tools for the UMA.

The TATU analysis included in the SIP indicates the maximum in the unmonitored areas is not significantly different than the 2017 FDVs calculated using all days above 75 ppb in the

baseline (2007 A.D. Guidance). TCEQ has not adjusted the TATU tool to use the FDVs from the 10-Day FDV calculation procedure in the 2014 Draft A.D. Guidance. TCEQ's TATU analysis indicates the highest values are in the same area as the five monitors that typically record the highest ozone levels in the DFW area, located north and west of Fort Worth: Denton Airport South, Eagle Mountain Lake, Fort Worth Northwest, Grapevine, and Keller. We agree with TCEQ's analysis that there are not areas outside of the monitored areas that are of concern and the highest area in the unmonitored analysis is in the heavily monitored area in the northwest quadrant of the DFW area, consistent with the 5 monitors listed above. Therefore, the 2017 FDVs are properly capturing the geographic locations of the monitored peaks and no significant hotspots were identified that need to be further addressed.

For a more complete description of the modeling attainment test procedures and conclusions and EPA's evaluation of these procedures and conclusions, see the MOAAD TSD in the Docket for this action.

7. What are EPA's Conclusions of the Modeling Demonstration?

EPA has reviewed the modeling and modeling results and finds they meet 40 CFR Part 51 requirements. The modeling using the 2014 Draft A.D. Guidance indicates that 17 out of 19 of the monitors are projected to be in attainment in 2017 while two monitors have 2017 FDVs just above the 2008 8-hour Ozone NAAQS (75 ppb). EPA concludes that the modeling results are within the range¹¹ where EPA recommends Weight of Evidence (WOE) be considered to determine if the attainment demonstration is approvable.

¹¹ 2007 A.D. Guidance indicated within 2-3 ppb for the 1997 8-hour 85 ppb standard and the 2014 Draft A. D. Guidance indicated the model results should be close to the standard without giving an exact range. The two values over with the 2014 Draft A.D. Guidance are just 1 ppb over the standard and EPA considers this be within the range

8. Weight of Evidence (WOE)

a. Background.

Both EPA's 2007 A.D. and 2014 Draft A.D. guidance documents recommend that in addition to a modeling demonstration, the states include WOE when the modeling results in FDVs are close to the standard. EPA's 2007 A.D. and 2014 Draft A.D. guidance documents both discuss additional relevant information that may be considered as WOE. The 2007 A.D. Guidance that was developed for the 1997 8-hour ozone standard of 85 ppb standard had a range of 82-87 ppb where a WOE analysis was recommended to support the attainment test. Applying that guidance's general principle to the 2008 8-hour ozone standard of 75 ppb, the DFW FDVs fall within the 2-3 ppb range of that guidance where WOE should also be considered. The 2014 Draft A.D. Guidance does not set a range but indicates that the FDVs should be close to the standard to use WOE, and EPA considers these 2017 FDVs to be very close to the standard (less than 1 ppb in both guidance cases).

A WOE analysis provides additional scientific analyses as to whether the proposed control strategy, although not modeling attainment, demonstrates attainment by the attainment date. The intent of EPA's guidance is to utilize the WOE analysis to consider potential uncertainty in the modeling system and future year projections. Thus, in the DFW case, even though the modeling predicts two out of 19 monitors have FDVs that are 1 ppb above the NAAQS, additional information (WOE) can provide a basis to conclude attainment is demonstrated. EPA's guidance indicates that several items should be included in a WOE

of 'close' as indicated by the guidance (2014 Draft A.D. Guidance page 190 "In conclusion, the basic criteria required for an attainment demonstration based on weight of evidence are as follows: 1) A fully-evaluated, high-quality modeling analysis that projects future values that are close to the NAAQS."

analyses, including the following: additional modeling, additional reductions not modeled, recent emissions and monitoring trends, known uncertainties in the modeling and/or emission projections, and other pertinent scientific evaluations. Pursuant to EPA's guidance, TCEQ supplemented the control strategy modeling with WOE analyses.

We briefly discuss the more significant components of the WOE that impacted EPA's evaluation of the attainment demonstration in this action. Many other elements are discussed in the MOAAD TSD. For EPA's complete evaluation of the WOE considered for this action, see the MOAAD TSD.

b. What Additional Modeling-Based Evidence did Texas Provide?

Texas submitted a significant body of information as WOE in the August 5, 2016 submittal. The Texas attainment demonstration modeling discussed above included a model sensitivity run with different Texas EGU emission levels to indicate how slight changes in Texas EGU NO_x emission budgets would impact projected 2017 FDVs in the DFW area. Texas increased the SIP modeling TX EGU emissions that are based on Cross State Air Pollution Rule (CSAPR)^{12 13} by 2.75 % using the older Texas EGU ozone season NO_x budget and source allocations from the Clean Air Interstate Rule (CAIR).¹⁴ This slight increase in EGU NO_x emissions resulted in a small increase of the FDV of 0.08 ppb at the Denton monitor. TCEQ conducted this sensitivity analysis in 2015, prior to EPA finalizing the CSAPR Update Budget

¹² Cross State Air Pollution Rule (CSAPR) Federal Register, 76 FR 48208 (July 6, 2011) and Federal Register, Federal Register, 76 FR 80760 (December 15, 2011).

¹³ See Sections Section 3.5.4; 3.7.4 Future Case Modeling Sensitivities; 3.7.4.1 2017 Clean Air Interstate Rule (CAIR) Phase II Sensitivity; 5.4.1.3 of the State's August 5, 2016 SIP submittal.

¹⁴ Clean Air Interstate Rule (CAIR) Federal Register, 70 FR 25162 (May 21, 2005).

for the 2008 ozone standard.¹⁵ EPA has evaluated the new CSAPR Update Texas EGU ozone season NO_x budget which results in a 20% decrease in emissions compared to the previous CSAPR budget that was included in the attainment modeling. The CSAPR Update required compliance with the new budget starting in May 1, 2017 which is the start of the core period of DFW ozone season. While these reductions were not modeled by TCEQ and occur after the start of the DFW ozone season, based on TCEQ's sensitivity modeling we would expect these EGU NO_x reductions to result in lower ozone levels at DFW monitors during the core DFW ozone season of May through September and provide positive WOE.

TCEQ also used a modeling concept that tracks the ozone generated in the modeling from ozone precursors by location and category of type of emission source that is referred to as using source apportionment.¹⁶ For 2017 and 2018, TCEQ performed source apportionment modeling using the Anthropogenic Precursor Culpability Assessment (APCA) tool.¹⁷ On the 10 highest days at each monitor, the APCA indicated that DFW sources contribute more on the 10 highest days. For these 10 highest days at the downwind monitors of Denton and Eagle Mountain Lake, the amount of ozone at the monitor due to emissions from local DFW sources was often in the 25-35 ppb range and combination of all Texas sources (DFW and rest of Texas) was often 33-43 ppb. This source apportionment indicates that on the worst days in the DFW area, local emission reductions and reductions within Texas are more beneficial than on other baseline exceedance days. This adds a positive WOE that DFW area reductions in mobile on-road and non-road

¹⁵ Cross State Air Pollution Rule Update for the 2008 Ozone NAAQS Federal Register, 81 FR 74504 (October 26, 2016).

¹⁶ Source apportionment allows the tracking of ozone generation from regions (such as upwind states or the DFW NA, etc.) and also by source category (such as on-road, nonroad, EGU, point sources, etc.).

¹⁷ See 3.7.3 of the State's August 5, 2016 SIP submittal.

categories as well as other categories aid in demonstrating attainment. When we say positive WOE, EPA is indicating that the WOE element factors more into supporting the demonstration of attainment. For EPA's complete evaluation of the modeled WOE elements considered for this action, see the MOAAD TSD.

c. Other Non-Modeling WOE

TCEQ showed that 8-hour and 1-Hour ozone DVs have decreased over the past 18 years, based on monitoring data in the DFW Area (1997 through 2014). TCEQ indicated that the 2015 8-hour ozone DV for the DFW nonattainment area is 83 ppb at Denton Airport South, which is in attainment of the former 8-hour standard (85 ppb) and demonstrates progress toward the current 75 ppb standard.

TCEQ's trend line for the 1-Hour ozone DV shows a decrease of about 2.1 ppb per year, and the trend line for the 8-hour ozone DV shows a decrease of about 1.1 ppb per year. The 1-Hour ozone DVs decreased about 27% from 1997 through 2014 and the 8-hour ozone DVs decreased about 21% over that same time. This is positive WOE that supports the demonstration of attainment.

EPA has also supplemented TCEQ's monitoring data analysis with more recent 2014-2016 and preliminary 2017 monitoring data¹⁸ (See Tables 3 and 4). The Denton monitor is located to the north-northwest of the DFW nonattainment area, which is downwind of the urban core and has been the highest DV monitor in DFW and has been setting the DFW NAA DV for the 2014 to 2016 years (and preliminarily in 2017) as the monitor with the highest measured DV. The 2016 DV (2014-2016 data) data indicates that only two monitors had a DV above the

¹⁸ The 2017 monitoring data is preliminary and still has to undergo Quality Assurance/Quality Control analysis and be certified by the State of Texas, submitted to EPA, and reviewed and concurred on by EPA.

standard (Denton – 80ppb and Pilot Point 76 ppb). Current preliminary 2015-2017 DV data indicates that only one of the nineteen monitors in the DFW area may be above the standard with a preliminary 2017 DV of 79 at Denton.¹⁹

The monitored DV is calculated by averaging the 4th High values from three consecutive years and truncating to integer (whole number) level in ppb. For example, the 2016 DV is the average of 4th Highs from 2014 -2016. The DV calculations can be driven by one high year (2015 in this case) so, for WOE purposes, we can also look at the 4th High 8-hour values for each recent year.

Overall as seen in Table 3 and 4 below, 2015 stands out with high ozone monitored data compared to other recent years (2014, 2016 and preliminary 2017). These 4th High 8-hour values support that the area with recent emission levels has been close to attaining the standard for several years. The high 2015 4th High 8-hour data is driving all the DVs for 2015, 2016, and preliminary 2017. Despite the high 2015 4th High 8-hour data that contributed to higher 2015, 2016, and preliminary 2017 DV values, examination of the 4th High 8-hour values for 2014, 2016 and preliminary 2017, support the finding that the general long-term trend identified by TCEQ of a steady reduction in DV should continue.

To assess what might have occurred if 2015 had not been such a high year we have calculated the average of the last two years (2016 and preliminary 2017) 4th Highs, and all

¹⁹ Any determination of whether the DFW ozone nonattainment area has attained by the applicable attainment date is a separate analysis that will be part of a separate EPA rulemaking. This rulemaking is focused on whether the State's submitted attainment demonstration is approvable under CAA standards. EPA is not in a position at this time to determine whether the DFW area has attained by the applicable attainment date, given that that the attainment date has not yet passed and the 2017 monitoring data is still preliminary.

monitors have values that are 1 ppb or more below the standard (values are 74.5 ppb or less).²⁰

Both the individual 4th High monitoring data from 2014, 2016, and 2017 and the average of the 2016 and preliminary 2017 data are some of the strongest, positive WOE. The ozone data indicates that emission levels in DFW NAA and the meteorology that occurred in 2014, 2016, and 2017 have led to ozone levels that are consistent with attainment of the NAAQS. Overall, with the exception of the high 2015 data, the recent monitoring data provides a strong positive WOE that supports the demonstration of attainment.

²⁰ When calculating a DV, the three consecutive years 4th highs are averaged and then truncated. For this discussion consider a hypothetical example of a monitor with 4th High values of 75 ppb, 76 ppb, and 76 ppb that would average to 75.67 and then be truncated to 75 ppb and be in attainment of the 75 ppb NAAQS. Therefore, the non-truncated value of the 2-year avg. 74.5 ppb at the Denton monitor is over 1 ppb lower than 75.67 ppb.

Table 3. DFW area monitors DVs (2014-2017)¹

	2014	2015	2016	2017 ¹	2016-2017 ¹ (2 Year Avg.)
	(ppb)	(ppb)	(ppb)	(ppb)	(ppb)
Denton Co. Airport	81	83	80	79	74.5
Pilot Point	79	79	76	74	71.5
Nuestra (North Dallas)	77	75	72	74	72
Hinton	78	75	71	74	72
Executive	74	68	64	64	62.5
Keller	77	76	73	73	72.5
Meacham	80	80	74	72	69.5
Arlington	75	67	65	67	66
Eagle Mt. Lake	79	76	72	71	68.5
Grapevine	80	78	75	75	74
Frisco	78	76	74	74	72.5
Italy	67	66	62	64	63
Midlothian Downwind	71	68	63	65	63.5
Granbury	76	73	69	67	64.5
Cleburne	76	73	72	73	73.5
Kaufman	70	67	61	61	59.5
Parker Co.	74	75	73	70	66.5
Rockwall	73	70	66	66	64
Greenville	69	64	60	62	62

¹ 2017 DV and 4th High 8-hour values are preliminary data

Table 4. DFW area monitors 4th High 8-hour values (2014-2017)¹

	2014	2015	2016	2017 ¹
	(ppb)	(ppb)	(ppb)	(ppb)
Denton Co. Airport	77	88	76	73
Pilot Point	75	79	75	68
Nuestra (North Dallas)	70	79	67	77

Hinton	66	80	69	75
Executive	63	68	62	63
Keller	74	76	70	75
Meacham	79	79	66	73
Arlington	65	69	61	71
Eagle Mt. Lake	73	78	67	70
Grapevine	73	79	75	73
Frisco	74	77	73	72
Italy	60	66	60	66
Midlothian Downwind	62	68	60	67
Granbury	73	73	63	66
Cleburne	71	73	72	75
Kaufman	62	64	57	62
Parker Co.	72	79	68	65
Rockwall	66	71	61	67
Greenville	62	62	58	66

¹ 2017 4th High 8-hour values are preliminary data

TCEQ also submitted WOE components that are further discussed in the MOAAD TSD including the following: conceptual model and selection of the 2006 period to fit the range of days and synoptic cycles that yield high ozone in DFW, additional ozone design value trends, ozone variability analysis and trends, NOx and VOC monitoring trends, emission trends, NOx and VOC chemistry limitation analysis, and local contribution analyses. Details of these WOE components that also provide positive WOE are included in Chapter 5 of the August 5, 2016 SIP submittal and discussed in the MOAAD TSD.

d. Other WOE Items from Texas Not Currently Quantified with Modeling: Additional Programs/Reductions, etc.

CEMENT KILNS - TCEQ also noted that the modeling for the Cement Kilns in Ellis County was based on a NOx cap of 17.64 tons per day when actual NOx emissions have been less than 10 tons per day. The modeling of the kiln emissions in the 2017 future year modeling is

high compared to actuals and even new permitted limits and provides positive WOE. EPA's guidance in this case recommends the cap limits be modeled. The fact that the three kilns have not operated at their cap, two of the kilns have shut down and the shut downs are permanent and enforceable, and the third kiln through reconstruction has lower emissions, and the NO_x reductions at Ash Grove (NO_x permitted reduction of 2.45 tons per day) provide positive WOE.

DFW AREA EMISSION REDUCTION CREDITS (ERC) AND DISCRETE EMISSION REDUCTION CREDITS (DERC)—TCEQ indicated that they modeled the DFW area ERCs and DERCs in the 2017 future year modeling and this is conservative as it is unlikely that all these credits would be used in one year. EPA agrees it might be conservative, but including the ERCs and DERCs in the future year 2017 modeling is consistent with EPA's guidance.²¹ EPA guidance calls for emission credits that are being carried in the emissions bank to be included in modeled projections because these emissions will come back in the air when and if the credits are used and without any clear limit on annual usage it cannot be clearly demonstrated that all the ERC/DERCs will not be used in the 2017 future year. It does provide positive WOE.

TEXAS EMISSION REDUCTION PLAN (TERP)- The TERP program provides financial incentives to eligible individuals, businesses, or local governments to reduce emissions from polluting vehicles and equipment. In 2015, the Texas Legislature increased funding for TERP to \$118.1 million per year for FY 2016 and 2017, which was an increase of \$40.5 million per year which resulted in more grant projects in eligible TERP areas, including the DFW area. Texas also noted that since the inception of TERP in 2001 through August 2015, over \$968 million dollars have been spent within the state through TERP and the Diesel Emission

²¹ See sections 12 and 16 of "Improving Air Quality with Economic Incentive Programs" (EPA-452/R-01-001, January 2001).

Reduction Incentive Program (DERI) that has resulted in 168,289 tons of NO_x reductions in Texas by 2015. TCEQ also noted that over \$327 million in DERI grants have been awarded to projects in the DFW area through 2015 resulting with a projected NO_x reduction of 58,062 tons that is also estimated as 18.7 tons per day of NO_x. These DERI and TERP benefits were not modeled but the reductions and future reductions do provide positive WOE.

LOW-INCOME VEHICLE REPAIR ASSISTANCE, RETROFIT, AND ACCELERATED VEHICLE RETIREMENT PROGRAM (LIRAP) - TCEQ established a financial assistance program for qualified owners of vehicles that fail the emissions test. The purpose of this voluntary program is to repair or remove older, higher emitting vehicles from use in certain counties with high ozone. The counties currently participating in the LIRAP include, but are not limited to Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, and Tarrant. In DFW NAA between December 12, 2007 and February 29, 2016, the program repaired 39,379 vehicles at a cost of \$20.894 million and retired and replaced 55,807 vehicles at a cost of \$167.629 million. Participating DFW area counties were allocated approximately \$21.6 million per year for the LIRAP for FYs 2016 and 2017. This is an increase of approximately \$18.8 million per year over the previous biennium. These LIRAP benefits were not modeled but the reductions and future reductions do provide positive WOE.

LOCAL INITIATIVE PROJECTS (LIP) - Funds are provided to counties participating in the LIP for implementation of air quality improvement strategies through local projects and initiatives (Examples: Studies on emissions inspection fraud and targeting high emission vehicles). The 2016 and 2017 state budgets included increases of approximately \$2.1 million per year over previous biennium. These LIP benefits were not modeled but the reductions and future reductions do provide positive WOE.

LOCAL INITIATIVES - The North Central Texas Council of Governments (NCTCOG) submitted an assortment of locally implemented strategies in the DFW nonattainment area including pilot programs, new programs, or programs with pending methodologies. These Local Initiatives benefits were not modeled but the reductions and future reductions do provide positive WOE.

ENERGY EFFICIENCY/ RENEWABLE ENERGY (EE/RE) MEASURES - Additional quantified and unquantified WOE emissions reductions (without NO_x reductions calculated) include a number of energy efficiency measures (Residential and Commercial Building Codes, municipality purchase of renewable energies, political subdivision projects, electric utility sponsored programs, Federal facilities EE/RE Projects, etc.). These efforts are not easily quantifiable for an equivalent amount of NO_x reductions that may occur, but they do provide positive WOE that growth in electrical demand is reduced and this results in reduced NO_x emissions from EGUs.

VOLUNTARY MEASURES - While the oil and natural gas industry is required to install controls either due to State or Federal requirements, the oil and natural gas industry has in some instances voluntarily implemented additional controls and practices to reduce VOC emissions from oil and natural gas operations in the DFW nonattainment area as well as other areas of the state. Since these are voluntary measures and reporting/verification is not a requirement these efforts are not easily quantifiable from an equivalent amount of NO_x and VOC reductions that may occur, but they do provide positive WOE that emissions from oil and gas development which is beneficial to lowering ozone formation from this sector.

9. Is the 8-hour Attainment Demonstration Approvable?

Consistent with EPA's regulations at 40 CFR 51.1108(c), Texas submitted a modeled attainment demonstration based on a photochemical grid modeling evaluation. EPA has reviewed the components of TCEQ's photochemical modeling demonstration and finds the analysis is consistent with EPA's guidance and meets 40 CFR Part 51, including 40 CFR Part 51 Appendix W – Guideline on Air Quality Models. The photochemical modeling was conducted to project 2017 ozone levels in order to demonstrate attainment of the standard by the attainment date. Although the modeled attainment test is not fully met and two of the 19 DFW monitors were projected to be slightly above the standard (less than 1 ppb), consistent with our A.D. guidance, TCEQ submitted a WOE analysis. This WOE analysis provides additional scientific analyses based on identification of emission reductions not captured in the modeling, monitoring trends and recent monitoring data (EPA included more recent monitoring data since the SIP submission) and other modeling analyses. The combination of the modeling and the WOE demonstrate attainment by the attainment date. We are therefore proposing to approve the attainment demonstration submitted August 5, 2016.

B. Review of Other Plan Requirements

1. Emissions Inventory (EI)

An emissions inventory is a comprehensive, accurate, and current inventory of actual emissions from all relevant sources of pollutants in the NAA. It is required by sections 172(c)(3) and 182(a)(1) of the CAA that nonattainment plan provisions include an inventory of NO_x and VOC emissions from all sources in the nonattainment area. EPA previously approved SIP revisions to the emissions inventory for the DFW moderate nonattainment area for the 2008 ozone NAAQS. See 81 FR 88124 (December 7, 2016).

2. Nonattainment New Source Review (NNSR)

The EPA approved the NNSR permitting program for the DFW NAA under the 2008 ozone NAAQS at 82 FR 27122 (June 14, 2017). All NNSR programs have to require (1) the installation of the lowest achievable emission rate, (2) emission offsets, and (3) opportunity for public involvement.

3. Motor Vehicle Inspection and Maintenance (I/M)

The EPA approved a State SIP revision for the 2008 8-hour ozone NAAQS requirements for vehicle I/M. See 82 FR 27122 (June 14, 2017).

4. Reasonable Further Progress (RFP)

On July 10, 2015, the TCEQ submitted a RFP SIP revision (supplemented on April 22, 2016) to the EPA. For the 2008 ozone NAAQS, the EPA fully approved the DFW moderate nonattainment area RFP SIP revision, the associated contingency measures, and the 2017 RFP Attainment Motor Vehicle Emission Budgets (MVEBs) on December 7, 2016 (81 FR 88124).

5. Reasonably Available Control Technology (RACT)

Section 182(b)(2) of the Act requires states to submit a SIP revision and implement RACT for major stationary sources in moderate and above ozone nonattainment areas. Based on the moderate classification of the DFW NAA for the 2008 ozone standard, a major stationary source is one that emits, or has the potential to emit, 100 tpy or more of NO_x or VOC. The EPA approved revisions to the State's SIP that revised rules for control of VOC to assist the DFW NAA in attaining the 2008 8-hour ozone NAAQS and that demonstrates that the VOC RACT requirements are met for the DFW NAA. The approval includes Wise County, a county previously added in the 2008 ozone designations, as part of the DFW moderate NAA. We approved the submitted NO_x rules (that included Wise County) to assist the DFW NAA in attaining the 2008 8-hour ozone NAAQS and then we approved the NO_x RACT demonstration

as part of the DFW moderate NAA SIPs but for one affected source.²² Our actions on the RACT for NO_x and VOC for the DFW NAA are found at 82 FR 44320 and 82 FR 60546.

6. Reasonably Available Control Measures (RACM)

The RACM requirement applies to all nonattainment areas that are required to submit an attainment demonstration. Section 172(c)(1) of the Act requires SIPs to provide for the implementation of all RACM as expeditiously as practicable and for attainment of the standard. EPA interpreted the RACM requirements of 172(c)(1) in the General Preamble to the Act's 1990 Amendments (April 16, 1992, 57 FR 13498) as imposing a duty on states to consider all available control measures and to adopt and implement such measures as are reasonably available for implementation in the particular nonattainment area. EPA also issued a memorandum reaffirming its position on this topic, "Guidance on the Reasonably Available Control Measures (RACM) Requirement and Attainment Demonstration Submissions for Ozone Nonattainment Areas," John S. Seitz, Director, Office of Air Quality Planning and Standards, dated November 30, 1999. In addition, measures available for implementation in the nonattainment area that could not be implemented on a schedule that would advance the attainment date in the area would not be considered by EPA as reasonable to require for implementation. EPA indicated that a State could reject certain measures as not reasonably available for various reasons related to local conditions. A state could include area-specific reasons for rejecting a measure as RACM, such as the measure would not advance the attainment date, or was not technologically or economically feasible. Although EPA encourages areas to

²² As a separate requirement of the Act, the State must demonstrate that the revised VOC and NO_x control strategies meet RACT. Again, we previously approved VOC RACT for the DFW NAA under the 2008 ozone NAAQS: NO_x RACT was approved for all but one affected source which was conditionally approved September 22, 2017 at 82 FR 44320 and the VOC RACT was approved at 82 FR 60546.

implement available RACM measures as potentially cost-effective methods to achieve emissions reductions in the short term, EPA does not believe that section 172(c)(1) requires implementation of potential RACM measures that either require costly implementation efforts or produce relatively small emissions reductions that will not be sufficient to allow the area to achieve attainment in advance of full implementation of all other required measures.

The TCEQ provided the DFW RACM analysis in Appendix G of the SIP submittal. Texas evaluated control strategies for NO_x and VOC emissions, from area, point and mobile (on-road and non-road) sources. The candidate strategies were identified by reviewing existing control strategies, existing sources of NO_x and VOC in the DFW NAA, and input from stakeholders (full list of measures is provided in Appendix G of the SIP submittal). As discussed in Chapter 5 of the SIP submittal and in Appendix D (Conceptual Model for the DFW Attainment Demonstration SIP Revision for the 2008 Eight-Hour Ozone Standard), sensitivity analyses and the photochemical modeling indicate that in the DFW NAA ozone is more responsive to NO_x reductions than VOC reductions. Many measures to reduce VOCs are already in place, through state and Federal mobile source programs, including recently approved VOC rules in Wise County (82 FR 60546). Based on previous modeling by TCEQ and the EPA, only large reductions of VOC emissions, on the order of 100 tons per day of typical VOCs, would advance the attainment date in DFW. We were unable to identify any additional available evaluated measures that cumulatively would provide 100 tons per day in VOC emissions reductions and thus, advance the attainment date for the DFW area. For more detail, see the Moderate Nonattainment Area TSD (MNA TSD).

The majority of NO_x emissions in the DFW NAA come from mobile sources and industrial processes; emissions of NO_x have been reduced to a large extent with controls on

stationary sources and improved mobile source programs. In addition, the State extended its NO_x RACT rules that were already in place to include Wise County (81 FR 21747). For more detail, see the MNA TSD.

We also reviewed whether there were additional available strategies to reduce NO_x emissions from mobile sources. Our analysis showed that the State SIP already has in place Transportation Control Measures (TCMs), Voluntary Mobile Emissions Program (VMEP), Texas Emissions Reductions Plan (TERP), and a motor vehicle I/M program that EPA has previously approved. Several of the measures in Appendix G are already covered under the TCMs, VMEP, TERP programs and several other local measures are being implemented at the airports and by various cities and others within the DFW NAA.

In order to advance attainment by a year (i.e., by July 20, 2017), the State would have to implement any additional control measures needed for attainment by the beginning of the 2016 ozone season, i.e., by March 1, 2016.²³ While the State was able to revise the SIP with the new attainment date, its review and analysis of additional RACM measures did not result in a finding that any additional measures could be adopted and implemented by March 1, 2016 in order to advance the attainment date. Based on the RACM analysis, the TCEQ determined that no potential control measures met the criteria to be considered RACM. All potential control measures evaluated for stationary sources were determined not to be RACM due to technological or economic feasibility, enforceability, adverse impacts, or ability of the measure to advance attainment of the NAAQS. In general, the State cited to the inability to advance attainment as the primary determining factor in the RACM analyses. Because there are no measures that could

²³ EPA signed a final rule on February 13, 2015 that finalized the revised 2008 ozone attainment dates. (See 80 FR 12264 (March 6, 2015).

have been adopted and implemented by a date that has now passed, we believe the State properly concluded that additional measures are not RACM.

EPA interprets the Act's RACM requirement to mean that a measure is not RACM if it would not advance the attainment date (57 FR 13498, 13560). This interpretation has been upheld. See *Sierra Club v. EPA*, 294 F.3d 155 (DC Cir. 2002) and *Sierra Club v. United States EPA*, 314 F.3d 735 (5th Cir. 2002). A state must consider all potentially available measures to determine whether they are reasonably available for implementation in the area, and whether they would advance the area's attainment date. The state may reject measures as not meeting RACM, however, if they would not advance the attainment date, would cause substantial widespread and long-term adverse impacts, or would be economically or technologically infeasible. Additionally, potential measures requiring intensive and costly implementation efforts are not RACM. *Sierra Club v. EPA* at 162–163 (DC Cir. 2002); *Sierra Club v. EPA*, 314 F.3d 735 (5th Cir. 2002); *BCCA Appeal Group v. EPA*, 355 F.3d 817 (5th Cir. 2003). To demonstrate measures that advance attainment of the ozone standard, the emission reductions from the measures must occur no later than the start of the 2016 ozone season—i.e., by March 1, 2016, in order to advance attainment. Because there are no measures that could have been adopted and implemented by a date that has now passed, we believe it is appropriate to conclude that additional measures are not RACM. EPA expects States to prepare a reasoned justification for rejection of any available control measure. The resulting available control measures should then be evaluated for reasonableness considering their technical and economic feasibility, and whether they will advance attainment. In the case of the DFW SIP, TCEQ performed an analysis to determine whether all RACM were included in the SIP. The Fifth Circuit in *Sierra Club v. EPA*, 314 F.3d 735, 745 (5th Cir. 2002) impressed upon EPA the duty to (1) demonstrate that it

has examined relevant data, and (2) provide a satisfactory explanation for its rejection of a proposed RACM and why the proposed RACM, individually and in combination, would not advance the area's attainment date. See *Ober*, 243 F.3d at 1195 (quoting *American Lung Ass'n v. EPA*, 134 F.3d 388, 392–93 (DC Cir. 1998)). EPA reviewed the State's RACM analysis and believes that the State has included sufficient documentation concerning the rejection of the available measures as RACM for the DFW NAA. Further information is found in the MNA TSD on why we agree with the State that no additional measures are RACM for the DFW area and therefore the RACM requirement of the Act is met.

We propose that any other available evaluated measures are not reasonably available for the DFW NAA, because they are either economically or technically infeasible, or would not produce emissions reductions sufficient to advance the attainment date in the DFW NAA and therefore, should not be considered RACM.

7. Attainment Motor Vehicle Emission Budgets (MVEBs)

The ozone attainment demonstration SIP must include MVEBs for transportation conformity purposes. Conformity to a SIP means that transportation activities will not produce new air quality violations, worsen existing violations, or delay timely attainment of the NAAQS. It is a process required by section 176(c) of the Act for ensuring that the effects of emissions from all on-road sources are consistent with attainment of the standard. EPA's transportation conformity rules at 40 CFR 93 require that transportation plans and related projects result in emissions that do not exceed the MVEB established in the SIP. The attainment year established in the DFW ozone attainment demonstration SIP is the calendar year of the final ozone season for determining attainment, which is 2017. See 40 CFR 93.118(b).

The attainment MVEB is the level of total allowable on-road emissions established by the control strategy implementation plan. Ozone attainment demonstrations must include the estimates of motor vehicle VOC and NO_x emissions that are consistent with attainment, which then act as a ceiling for the purposes of determining whether transportation plans, programs, and projects conform to the attainment demonstration SIP. In this case, the attainment MVEBs set the maximum level of on-road emissions that can be produced in 2017, when considered with emissions from all other sources, which demonstrate attainment of the 2008 ozone NAAQS.

The 2017 attainment MVEBs established by this plan and that the EPA is proposing to incorporate into the DFW SIP are listed in Table 12:

Table 12. 2017 DFW Attainment Motor Vehicle Emissions Budgets (tons per day)

Pollutant	2017
NO _x	130.77
VOC	64.91

We found the 2017 attainment MVEBs (also termed transportation conformity budgets) “adequate” and on September 7, 2016, the availability of these budgets was posted on EPA’s website for the purpose of soliciting public comments. The comment period closed on October 6, 2016, and we received no comments. On November 8, 2016, we published the Notice of Adequacy Determination for these attainment MVEBs (81 FR 78591). Once determined adequate, these attainment MVEBs must be used in future DFW transportation conformity determinations.

The attainment budget represents the on-road mobile source emissions that have been modeled for the attainment demonstration. The budget reflects all of the on-road control measures in that demonstration. We believe that the MVEBs are consistent with all applicable SIP requirements and thus are proposing to approve the 2017 attainment MVEBs into the DFW

ozone attainment demonstration SIP. All future transportation improvement programs, projects and plans for the DFW NAA will need to show conformity to the budgets in this plan.

8. Contingency Measures Plan

The general requirements for ozone nonattainment plans under CAA section 172(c)(9) specify that each nonattainment plan must contain additional measures that will take effect without further action by the State or EPA if an area fails to attain the standard by the applicable date.²⁴ The Act does not specify the type of measures, quantity of emissions reductions required, or how many contingency measures are needed and thus, EPA has interpreted sections 172 and 182 of the Act in the General Preamble (57 FR 13498, 13510) to require states with moderate or above ozone NAAs to include sufficient contingency measures so that, upon implementation of such measures, additional emissions reductions of up to 3 percent of the emissions in the adjusted base year inventory would be achieved in the year following the year in which the failure has been identified. These could include federal measures and local measures already scheduled for implementation, since the CAA does not preclude a state from implementing such measures before they are triggered. EPA based the 3% recommendation in the General Preamble on the fact that moderate and above areas are generally required through the Rate of Progress (ROP)/RFP requirements to achieve an average of 3% reduction per year until they attain the NAAQS. The state must specify the type of contingency measures and the quantity of emissions reductions and show that the measures can be implemented with no further rulemaking and minimal further action by the State. See the MNA TSD for a list of applicable guidance documents.

²⁴ These provisions do not apply to Marginal NAAs (see section 182(a) of the CAA).

The State submittal includes a contingency measures plan consisting of the emission reductions from the additional fleet turnover due to the Federal Motor Vehicle Control Program and Federal non-road mobile new vehicle certification standards. These measures provide NO_x emission reductions that are in excess of 3 percent of the NO_x emissions in the adjusted base year inventory.²⁵ See our MNA TSD for more detail. The fleet turnover measure is a Federal rule and as such is enforceable by the EPA, the State and the public. This proposed approval action would make the specified measures' projected SIP credits enforceable by the EPA and the public.

All specified measures are surplus to the reductions in the attainment demonstration. Finally, the measures are considered permanent because they continue for as long as the period in which they are used in the failure-to-attain contingency measures plan. See the MNA TSD for additional detail.

C. CAA Section 110(l) Analysis

Section 110(l) of the CAA precludes EPA from approving a revision of a plan if the revision would interfere with any applicable requirement concerning attainment and RFP (as defined in section 171 of the Act), or any other applicable requirement of the CAA. This action proposes approval of a plan that demonstrates that already adopted measures both Federal or State will provide levels of emissions consistent with attaining the ozone NAAQS. Since it is a demonstration, it will not interfere with any other requirement of the Act. Also in this action, we

²⁵ The CAA does not preclude a state from implementing such measures before they are triggered. In *Louisiana Envtl. Action Network v. EPA*, 382 F.3d 575 (5th Cir. 2004), the Fifth Circuit held that Clean Air Act § 7502(c)(9) was ambiguous because it “neither affirms nor prohibits continuing emissions reductions - measures which originate prior to the SIP failing, but whose effects continue to manifest an effect after the plan fails - from being utilized as a contingency measure.” The Court agreed with EPA’s interpretation that “contingency measures” could include measures that had already been implemented by a state.

are proposing to approve the attainment MVEBs, which are lower than the previously approved MVEBs for RFP (81 FR 88124), and the contingency measures plan. The lower attainment demonstration MVEBs and on-going emission reductions through the contingency measures plan both provide progress toward attainment and as such do not interfere with any applicable requirement of the Act.

III. Proposed Action

We are proposing to approve the August 5, 2016 2008 8-hour ozone modeling and WOE submitted by the State of Texas because it demonstrates attainment by the attainment date. We also are proposing to approve the RACM analysis, the contingency measures plan in the event of failure to attain the NAAQS by the applicable attainment date, and the associated Motor Vehicle Emissions Budgets (MVEBs) for 2017. Finally, we are proposing approval of the use of TATU's tool and its Unmonitored Area analysis as acceptable for meeting the recommended evaluation of ozone levels in the Unmonitored Area analysis for this SIP proposed approval action.

IV. Statutory and Executive Order Reviews

Under the CAA, the Administrator is required to approve a SIP submission that complies with the provisions of the Act and applicable Federal regulations. 42 U.S.C. 7410(k); 40 CFR 52.02(a). Thus, in reviewing SIP submissions, the EPA's role is to approve state choices, provided that they meet the criteria of the CAA. Accordingly, this action merely proposes to approve state law as meeting Federal requirements and does not impose additional requirements beyond those imposed by state law. For that reason, this action:

- Is not a "significant regulatory action" subject to review by the Office of Management and Budget under Executive Orders 12866 (58 FR 51735, October 4, 1993) and 13563 (76 FR 3821, January 21, 2011);

- Is not an Executive Order 13771 (82 FR 9339, February 2, 2017) regulatory action because SIP approvals are exempted under Executive Order 12866;
- Does not impose an information collection burden under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*);
- Is certified as not having a significant economic impact on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*);
- Does not contain any unfunded mandate or significantly or uniquely affect small governments, as described in the Unfunded Mandates Reform Act of 1995 (Public Law 104-4);
- Does not have Federalism implications as specified in Executive Order 13132 (64 FR 43255, August 10, 1999);
- Is not an economically significant regulatory action based on health or safety risks subject to Executive Order 13045 (62 FR 19885, April 23, 1997);
- Is not a significant regulatory action subject to Executive Order 13211 (66 FR 28355, May 22, 2001);
- Is not subject to requirements of section 12(d) of the National Technology Transfer and Advancement Act of 1995 (15 U.S.C. 272 note) because application of those requirements would be inconsistent with the CAA; and
- Does not provide EPA with the discretionary authority to address, as appropriate, disproportionate human health or environmental effects, using practicable and legally permissible methods, under Executive Order 12898 (59 FR 7629, February 16, 1994).

In addition, the SIP is not approved to apply on any Indian reservation land or in any other area where EPA or an Indian tribe has demonstrated that a tribe has jurisdiction. In those

areas of Indian country, the proposed rule does not have tribal implications and will not impose substantial direct costs on tribal governments or preempt tribal law as specified by Executive Order 13175 (65 FR 67249, November 9, 2000).

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Incorporation by reference, Nitrogen dioxide, Ozone, Volatile organic compounds.

Authority: 42 U.S.C. 7401 *et seq.*

Dated: April 25, 2018.

Anne Idsal,

Regional Administrator, Region 6.

[FR Doc. 2018-09313 Filed: 5/2/2018 8:45 am; Publication Date: 5/3/2018]